Summary quality report for short term earnings data releases

Introduction

This report covers three key indicators of Short-Term Earnings all derived from the Monthly Wages and Salaries Survey (MWSS). These are the Average Earnings Index, Average Weekly Earnings and the Index of Labour Costs per Hour. The report's aim is to help users to assess the quality of these indicators, and assess which of the three is most appropriate to use in different circumstances.

This report is part of a rolling programme of quality reports being introduced by the Office for National Statistics (ONS). The full programme of work on Statistical Quality[i] is available on the National Statistics website.

Summary of quality

1 Relevance and coherence

Relevance: The degree to which the statistical product meets user needs for both coverage and content. Coherence: The degree to which data that are derived from different sources or methods, but which refer to the same phenomenon, are similar.

A family of indicators has been developed to provide a range of information for users about short term changes in, and levels of, earnings:

i. the Average Earnings Index (AEI), an established National Statistic;,
ii. the Average Weekly Earnings (AWE) indicator, an experimental statistic; and
iii. the Index of Labour Costs per Hour (ILCH), an experimental statistic.

Coherence of the earnings indices

	Average Earnings Index	Average Weekly Earnings	Index of Labour Costs per Hour
What it measures	Monthly change in average earnings.	Average weekly earnings.	Quarterly change in average hourly labour costs.
Frequency	Monthly.	Monthly.	Quarterly.
Sample Size (useable data)	About 8,800 (7,000 due to matched pairs) businesses.	About 8,800 (7,300) businesses.	About 8,800 (7,300) businesses.
Periods available	From January 1990.	From January 2000.	From January 2000.
Sample frame (for MWSS)	Inter Departmental Business Register (IDBR)	Same as AEI	Same as AEI
Sample Design (for MWSS)	Stratified random sample with strata defined by Standard Industrial Classification (SIC), employment size of a business and whether the business is public or private.	Same as AEI	Same as AEI

Weighting	Each business represents a number of similar businesses, based on number of employees and industry. The number that it represents is updated annually using the IDBR.	Each business represents a number of similar businesses, based on number of employees and industry. The number that it represents is updated monthly using the IDBR.	Each business represents a number of similar businesses, based on number of employees and industry. The number that it represents is updated quarterly using the IDBR.
Estimation	Matched-pairs estimator, calculates monthly change in earnings per employee.	Ratio estimator.	Ratio estimator.
Imputation	No automatic rules – some manual construction in exceptional circumstances.	Most recent pay data carried forward for a maximum of 5 months. Bonus pay carried forward from previous year.	Most recent wages and non-wage costs carried forward for a maximum of 5 months.
Outliers	Businesses with extreme total pay for their business size are treated as outliers. Outliers are weighted by a factor of one.	Same as AEI for total pay and also regular pay.	Same as AEI for total pay and also regular pay.
Businesses with fewer than 20 employees (not sampled in MWSS)	These businesses are not estimated for but are accounted for using weights.	Estimated using data from the Annual Survey of Hours and Earnings.	Estimated using data from the Annual Survey of Hours and Earnings.
Non-wage costs	None.	None.	Includes employer National Insurance & pension contributions, sick, paternity and maternity payments and benefits in kind
Index Reference Period	Updated every 5 years.	Not an index – no reference period.	Same as AEI.
Revisions	Revisions occur one month after initial publication.	Revisions occur one month after initial publication.	Revisions occur each quarter.

Figures are available for these indicators as per the following criteria:
• Including and excluding arrears;
• Seasonally adjusted, including and excluding bonuses;
• For four sub-sectors of the public sector (public administration, education, health & social work, and other).

The established **Average Earnings Index** (AEI) is a National Statistic. It measures the monthly change in average weekly earnings of employees. The AEI is based solely on the MWSS and therefore it covers employees working in businesses with 20 or more employees in all industrial sectors in Great Britain.
The series of earnings excluding bonuses and arrears of pay is one of the key indicators used by Her Majesty's Treasury and by the Bank of England's Monetary Policy Committee to track underlying movements in earnings and to judge inflationary pressures.
The Average Earnings Index is calculated using fixed employment weights when aggregating the average wage for each industry to get the whole economy average (the weights being updated once a year). This means that it is affected by changes in the composition of employment within industries but not by changes in the composition of employment between industries.

The **Average Weekly Earnings** (AWE) series is still under development and hence has been published with a status of experimental[ii]. The AWE is published by industrial sectors in Great

Britain but is also available as a UK series. It is a monthly time series of earnings which provides a pounds and pence value of average weekly earnings per employee. In effect, it is the estimated total earnings in the economy divided by the estimated total number of employees. For this reason it has been described as 'true average earnings', in documents such as the Turnbull-King report. The AWE has an advantage over the AEI of capturing changes in earnings which are caused by the change in the composition of employment between industries. This is because, in Average Weekly Earnings, the employment weights of each industry are recalculated every month, enabling this measure to capture the changing industrial structure of employment. AWE will therefore add value to the understanding of short-term movements in earnings when there are shifts in employment from low paying to high-paying industries and vice-versa. For example, towards the end of 2002, employment numbers were increasing in some lower paid industries such as retail and education, but decreasing in some higher paid industries such as wholesale and computer-related activities. These shifts of employees from one industry to another had an immediate effect on the growth rates in the Average Weekly Earnings series.

The Average Weekly Earnings indicator also provides estimates of the proportion of average weekly wages accounted for by bonuses and arrears.

The **Index of Labour Costs per Hour (ILCH)** is published quarterly and is available for both the UK and Great Britain. This is also an experimental statistic, developed to meet the European Union Regulation EC 450/2003[iii].
It is a more widely defined measure than AEI and AWE, going beyond wages and salaries to include non-wage costs such as employer National Insurance and pension contributions, sickness, maternity and paternity payments and benefits in kind, which are not considered by the other indicators. However, in terms of movements in the index, the inclusion of non-wage costs has a relatively small impact since they account for a small and relatively stable proportion of total pay. The main difference in movements between the ILCH and the AWE is that the ILCH gives estimates per hour actually worked, whereas the AWE gives earnings per employee. The hourly measure is more volatile, because it picks up short term fluctuations in activity, such as unpaid overtime, or (more importantly) paid holidays. It therefore generally peaks in quarters 1 and 3 each year, because most employees take paid holiday in quarter 1 for New Year and Easter, and during the July to September period. To illustrate the underlying trend, a seasonally adjusted ILCH series is also produced.

Both the Index of Labour Costs per Hour, and the Average Weekly Earnings will be affected by changes in the composition of employment, in so far as employees move between jobs with different hourly rates of pay.

More information is available on the comparison of these short term earning indicators with the Annual Survey of Hours and Earnings (ASHE) here[iv].

2 Accuracy

The closeness between an estimated result and the (unknown) true value.

Two measures are used to assess the accuracy of the estimates:

- reliability, which can be measured by assessing the difference between the first published estimate, and the final revised figure;
- standard errors, which are estimates of the variability associated with sample based estimates.

The estimates are revised in the month (or quarter in the case of ILCH) following release, usually as a result of late returns to the underlying survey. Seasonally adjusted estimates are also subject to revision in the month (or quarter) a year after release or as a result of seasonal adjustment reviews. Results of revisions analyses to key series of the AEI are regularly presented in the background notes of all Labour Market First Releases. Revisions spreadsheets[v] containing the data underlying these analyses are also available.

The standard error of the AEI growth rate is published in the Labour Market First Release.[vi] If, in any month, we observe an annual growth in earnings of 5.8% with a standard error of 1.5%, we can construct a 95% confidence interval of [5.8% ± 1.96*1.5%], or [2.9%, 8.7%]. If the survey were repeated many times under the same conditions, we would expect such a confidence interval to contain the true value on 95% of occasions.

The inclusion of bonus payments in the AEI increases the sampling variability, as the levels of bonuses vary greatly between enterprises within the same industry. Bonuses are also collected by the survey at the time of payment, rather than during the period over which they are earned. This is less onerous on respondents and provides more stable data as the bonus figure quoted is the one produced for the business payroll.

Methods to estimate sampling variability for AWE and the ILCH are currently under development and are expected to be implemented later in 2006. We intend that both the AWE and ILCH will be ready to be given National Statistic status by mid-2007.

3 Timeliness and Punctuality

Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the time lag between the actual and planned dates of publication.

The National Statistics Release Calendar[vii] is available online and provides twelve months advanced notice of releases. Publication dates are fixed and over the last 3 years have never been delayed or missed.

For the AEI the data are published approximately 44 days after the end of the period to which they refer. The AWE is published one week later. Both the indicators are subject to revision one month after initial publication, to take on additional data and revisions made by the contributor.

The ILCH is published quarterly. The ILCH data are revised each quarter, to take on revisions caused by extra, or late information from the MWSS respondents, as well as extra information on Hours Worked from the Labour Force Survey (LFS), which is published on a seasonal quarter basis.

The timing of publication for AEI and AWE is a trade off between timeliness and accuracy. Because they are short term indicators, the main users want the figures to be available as soon as possible after the end of the period to which they refer, even if this means that they are subject to some revision the following month.

4 Accessibility and Clarity

Accessibility is the ease with which users are able to access the data, also reflecting the format(s) in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.

Earnings data are published every month and include tables, text and charts. The data are widely available, generally free of charge, through a range of media.

First Releases and Time Series[viii] data for the AEI are contained within the integrated Labour Market First Releases. These are available to download, free of charge, from the National Statistics website. Paper copies are also available through subscription from the ONS Press Office (tel: 020 7533 5707). First Releases contain both additional textual analysis and charts that supplement the data in the tables.

Results for AWE and the ILCH are published on the National Statistics website including the seasonally adjusted series, and the UK series.

More detailed data are available in the monthly Labour Market Trends[ix], published by Palgrave Macmillan. This also includes articles on new developments, in addition to articles on methodology for short-term earnings indicators

For ad hoc queries, there is an Earnings Help line (tel: 01633 819024), and an email address[x], from which advice on the ASHE survey can also be obtained.

5 Comparability

The degree to which data can be compared over time and domain.

Owing to changes in the sample design in July 1999 the two new indicators, AWE and the ILCH, are only available on a consistent basis from 2000. This is a sufficiently long period to perform seasonal adjustment. The AEI is available on a consistent basis from 1990.

All indicators are published as measures for Great Britain. Additionally, to allow for international comparison, Eurostat requires ILCH to be estimated for the United Kingdom (UK). AWE is also available on a UK basis. The Northern Ireland component is estimated using information from the Annual Survey of Hours and Earnings (ASHE).

All three indicators are published for the same aggregates to allow for comparability. These comprise: the whole economy level, the following 6 main headings (public sector, private sector, production, manufacturing, services and private sector services), as well as individual industry series. The classifications are based upon the Standard Industrial Classification (1992).

Summary of methods used to compile the output

Many of the methods used to compile the three distinct outputs have been covered above. For a comprehensive explanation of each of the full methodologies please refer to the separate Labour Market Trends articles for the

1. Earnings Overview[iv]
2. Average Earnings Index[xi]
3. Average Weekly Earnings[xii]
4. Index of Labour Costs per Hour[xiii]

The main source of information for these indicators is the Monthly Wages and Salaries Survey (MWSS), which is distributed monthly to over 8,800 businesses and covers some 12.8 million employees. The major strength of the MWSS is that it provides comprehensive information on earnings, by industry. In terms of industrial coverage, information on all industries is collected, as defined by the Standard Industrial Classifications (1992).[xiv] information on both the public and private sectors is available. Commission, bonuses, overtime and pay award arrears are measured in addition to pay. However, the MWSS survey excludes redundancy payments and benefits in kind.

MWSS does not cover businesses with fewer than 20 employees, and so the very smallest businesses in the economy are not represented by the AEI. AWE and ILCH attempt to extend this to full coverage by using data from the Annual Survey of Hours and Earnings (ASHE) to estimate for these small businesses. Similarly, the MWSS only contacts respondents within Great Britain, so does not cover Northern Ireland. AWE and ILCH also use data from the annual, structural earnings survey to estimate for businesses within Northern Ireland, allowing them to provide estimates for the United Kingdom.

Statistical disclosure control methodology[xv] is also applied to the data. This ensures that information attributable to an individual organisation is not disclosed in any publication. The National Statistics Code of Practice, and specifically in the Protocol on Data Access and Confidentiality set out principles for how we protect data from being disclosed. The Protocol includes a guarantee to survey respondents that "no statistics will be produced that are likely to identify an individual unless specifically agreed with them".

References

[i] Statistical Quality Programme: http://www.statistics.gov.uk/about/data/methodology/quality/default.asp
[ii] Experimental Statistics FAQs http://www.statistics.gov.uk/cci/nugget.asp?id=173
[iii] EU Regulation 450/2003: http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_069/l_06920030313en00010005.pdf
[iv] Developments in ONS Earnings Statistics: An Overview http://www.statistics.gov.uk/cci/article.asp?id=1184
[v] AEI Revisions Spreadsheets: http://www.statistics.gov.uk/statbase/product.asp?vlnk=1944
[vi] Integrated Labour Market First Release: http://www.statistics.gov.uk/statbase/Product.asp?vlnk=1944
[vii] National Statistic Release Calendar: http://www.statistics.gov.uk/ReleaseCalendar/currentreleases.asp
[viii] AEI First Releases: http://www.statistics.gov.uk/statbase/TSDTimezone.asp
[ix] Labour Market Trends http:/www.palgrave.com/ONS
[x] ONS Earnings Helpline: tel 01633 819024 or by email earnings@ons.gov.uk
[xi] Average Earnings Index: Article published in Labour Market Trends in December 2000, pp553-562
[xii] Average Weekly Earnings: http://www.statistics.gov.uk/cci/article.asp?ID=1182
[xiii] Index of Labour Costs per Hour: http://www.statistics.gov.uk/cci/article.asp?ID=1183
[xiv] Integrated Labour Market First Release: http://www.statistics.gov.uk/statbase/Product.asp?vlnk=1944
[xv] Statistical Disclosure Control http://www.statistics.gov.uk/about/data/methodology/general_methodology/sdc.asp